

the right. The treatment was quiescence in bed in the recumbent position, the administration of the iodide of potassium, and the ordinary meat diet. The iodide was commenced in doses of ten grains three times each day; it was increased to forty grains for each dose, and was continued for five weeks. The pulsation was only diminished; it was determined, therefore, to employ arterial compression. Lister's abdominal tourniquet was applied to the abdominal aorta four inches above the umbilicus, upon three occasions: upon the first for half an hour, upon the second for three-quarters of an hour, and upon the third for one hour and a half. Upon each occasion, the patient was fully under the influence of an anæsthetic: upon the first and second, of chloroform, and upon the third of chloroform and ether. About forty-eight hours after the third application, the aneurism solidified, the size being estimated about equal to that of an ordinary cricket-ball. Three weeks afterwards, the tumour had wholly disappeared, and no evidence of the aneurism was discernible. In both, the lesion of the arterial coats was looked upon as inflammatory in nature, and not as atheromatous. In the treatment, whether constitutional or mechanical, the principle was recognized that it is necessary for the circulation to be enfeebled or impeded in order that the aneurismal sac may become filled with the constituents of the blood, and, in process of time, rendered impervious. The term constitutional treatment was considered to include the dietetic, medicinal, and postural requirements. In the first case, the result was gained by constitutional treatment alone; in the second, by mechanical treatment after the constitutional treatment had been unprofitable. The effect of the administration of the iodide of potassium, in association with rest and regular diet, in the first case, was conjectured to have been the gradual filling with the constituents of the blood and in the subsequent shrinking of the aneurismal sac, but without the obliteration of the aorta. In the mechanical treatment—that by the application of pressure—more than this was effected; for it might be assumed that the current of blood along the aorta, and thence into the aneurism, was either wholly or in a great measure arrested. The interval of time that elapsed between the compression and the consolidation would be in favour of the supposition that laminated fibrin was first deposited and coagulum subsequently superadded, filling the aneurismal sac and blocking the aorta. This was the explanation that was offered. If it be admitted that the supposition was correct, it is unnecessary to apply pressure wholly to interrupt the circulation, but rather that the circulation should be impeded; moderate compression should be employed to lower the force of the circulation; and the mechanical treatment should be in accord with the constitutional treatment. The conclusion deduced was, that aneurismal tumour of the lower portion of the abdominal aorta may be successfully treated by arterial compression on the cardiac side of the aneurism, but that the method was dangerous, and should not be employed until the constitutional treatment had failed; and that, if arterial compression were employed, it should be moderate and prolonged rather than complete and of short duration.

The Surgical Function of the Omentum.

In an interesting paper read before the Medico-Chirurgical Society of Edinburgh (*Edin. Med. Journal*, July, 1877), Dr. KENNETH M'LEOD, Surgeon-Major Bengal Medical Service, lays down the proposition that, in penetrating wounds of the abdomen of small size, the omentum is prone to protrude, and, protruding, acts as a plug which stops up the wound, and prevents the protrusion of the other viscera contained in the cavity, and, in so doing, subserves a most important surgical purpose.

Dr. M'Leod has collected, for the purpose of study, the notes of 57 cases of ab-

dominal wounds. He finds that while omental protrusions are liable to take place from any point in the anterior and lateral walls of the abdomen, and even through wounds of the lower chest wall, they are more liable to occur in the umbilical region, more common below than above the umbilicus, and more frequent on the left than on the right side.

This conservative action of the omentum Dr. M'Leod finds extends to wounds of the diaphragm and of the intestine.

A study of the natural history of these protrusions shows that they appear always to take place immediately after the injury has occurred.

The treatment of omental protrusions depends mainly upon the time which has elapsed since the protrusion took place; but the nature and position of the wound, the amount and condition of the protruded mass, the degree of constriction to which it is subjected, and the symptoms which have arisen, are also points of importance.

1. In recent and reducible cases where the omentum is uninjured, surgical authorities¹ are agreed that the hernia should be reduced after washing, if necessary, and the wound carefully stitched up.

2. As regards recent irreducible cases, authorities are not so unanimous. The obstacle to reduction is the constriction caused by the wound, and the practical question comes to be, Should the wound be enlarged to permit of reduction or not? Reduction is not, it will be observed, so imperatively necessary as in the case of the hollow viscera, or even of the other solid organs. The risk of enlarging the wound is, of course, hernia. Against this may be placed the painful symptoms that may be caused by strangulation, for whose relief some surgeons counsel enlargement of the wound without subsequent reduction. Again, some authors make the size and amount of the protruded mass a ground of difference in dealing with it. A small protrusion does not take so long to disappear when left to itself as a large one, and in the latter there is greater risk of a bit of intestine being inclosed, or of uneasy sensations or functional disturbance of stomach or bowels being caused by dragging. Although enlargement of the wound and reduction have been practised with success, Dr. M'Leod should incline in this class of cases to leave the protrusion alone, unless suspicion of a piece of bowel being included existed, or uneasy symptoms appeared, in which circumstances relief of the constriction or enlargement of the wound and reduction might be advisable. Guthrie points out that the obstacle to reduction is in the wound of the skin and aponeurosis, and not in that of the peritoneum, and he advises enlargement of the former, proceeding afterward as in reducible cases. Both ablation and ligature, separately and combined, have been put in practice, and have resulted in cure; but Bryant's advice to wait for two weeks until adhesions shall have formed at the neck of the tumour, and then remove by single or double ligature or excision, or by both methods combined, commends itself as judicious and consistent with what we know of the pathology of this condition. If reduction is practised, anti-septic precautions are certainly indicated; and, even if Bryant's plan be followed, their adoption would, to say the least, do no harm. A prolonged and violent taxis would in any case be obviously improper and unsafe.

3. When the omentum is bruised or lacerated, its reduction in this condition would obviously be wrong, and the question remains whether it should be left as it is, the torn and bruised parts removed, and the rest reduced, or the whole excised with or without previous ligature, or simply ligatured at the level of the wound. Each plan has been practised successfully. Deliberate strangulation by

¹ Boyer, Ravaton, Larrey, Samuel Cooper, Guthrie, Ballingall, Syme, Chelius, Gross, Hamilton, Erichsen, Pollock, Otis, Bryant.

string of a recent omental protrusion is not good practice. Pipelet gives instances of mischief caused by it; and Travers and Sir Astley Cooper, both high authorities, disapprove of the practice in the closely analogous case of epiplocele. Ablation by knife, though a sounder practice, seems unnecessary; and, on the whole, Dr. M'Leod should either, with Larrey, Guthrie, and others, leave the case to nature, clipping away ragged pieces if needful, or, with Bryant, wait till adhesions had formed, and then ligature at the neck, and excise the mass beyond under the antiseptic system.

4. In a congested or strangulated recent protrusion, the alternatives are—(a) to leave the case to nature; (b) to relieve the stricture; or (c) to excise or ligature. Returning a congested or semi-strangulated omentum into the abdominal cavity is out of the question. Relieving the constriction by enlarging the wound would only be necessary or advisable when symptoms existed demanding such relief. Incising the congested mass might give ease, and perhaps prevent extension of inflammation inwards. The same objection obtains to ablation or deligation, as in any other recent case where adhesions have not so far placed the mass outside the peritoneum. Syme, in condemning the practice of ligature in the parallel case of hernia, pithily remarks, that it would amount to relieving the patient from the effects of one stricture and exposing him to those of another still tighter. Relief of the stricture or removal after adhesion had formed, are, Dr. M'Leod submits, the only justifiable modes of interference in such cases.

5. When the protrusion has become pancreatized (so to speak) by inflammation, and adhesions have united its layers together, and its neck to the lips of the wound, it may either be left alone or removed. If left alone the case is more tedious. Removal by knife or string, or both, are safe enough, but should be done antiseptically. The mass has now become practically extraperitoneal, and interference is not so dangerous as in recent cases. Perhaps, if it is decided to remove the mass, the knife or *ecraseur* is preferable to the ligature, bleeding vessels being of course carefully secured.

6. When suppuration has taken place in the hernial mass, incision is obviously indicated. The case should, in fact, be treated as any other abscess, or, if adhesions have formed and the matter is outside of the abdominal cavity, removal of the whole mass may be practised.

7. When the protrusion is gangrenous in part or in whole, if adhesions have cut it off from the abdominal cavity, it may be either left to nature, or removed by knife, *ecraseur*, or ligature. If there is any doubt as to adhesions having formed, the propriety of interference is more than doubtful. If removal is practised, antiseptic precautions should be adopted.

From all the evidence and considerations which Dr. M'Leod has now adduced, he thinks that the protective function of the omentum in penetrating abdominal wounds, and to a more limited extent in intestinal lesions, has been fully established. He would submit that, in cases of wounds perforating the abdominal parietes, surgeons would act wisely in not interfering too rashly with the beneficent operation of this organ, or even in endeavouring, if practicable, to interpose between the hollow viscera and the parietal wound, that organ which normally covers them, and seems intended to shield them from the baneful effects of extrusion or inflammation. The mortality of penetrating abdominal wounds is so great that any measure giving promise of reducing it is worthy of very special attention.

Extirpation of the Spleen.

Prof. BILLROTH, in his clinic at Vienna, lately excised a spleen, the patient being a man about forty years of age. The organ was extremely adherent to the